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PATHWAYS FROM ADVERSE CHILDHOOD EXPERIENCES TO DRUG ABUSE: STRESS AS A MEDIATOR AND EMOTIONAL INTEREST AS A MODERATOR

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Abstract

Multiple factors can influence the relationship between adverse childhood experiences (ACEs) and drug abuse. This study examined whether stress mediates the association between ACEs and substance use–specifically co-use, nicotine use, and cannabis use–and whether this mediation effect varies as a function of emotional interest. A total of 249 participants completed measures assessing demographics, ACEs, stress, and drug misuse, along with a delay discounting task. Data were collected using the snowball sampling technique. Analyses were conducted using Hayes' PROCESS macro (Version 3.4, Model 15) with moderated mediation and Pearson correlations. The results revealed a significant association between ACEs and drug misuse, with stress serving as a mediator in this relationship. Furthermore, emotional interest was found to moderate the link between ACEs and stress. These findings highlight the complex interplay between early adverse experiences, emotional regulation, and substance use behaviors.

1. INTRODUCTION

1.1. Background

The problem drug abuse is emerging as a major health care problem in todays' world. Currently young generations are affected by it in one or multiple ways. Due to the increase in drug or substance abuse ratios it has now become a life threat. In the United States drug abuse is emerging as a life-threatening problem. In accordance with the reports by Centers for Diseases Control and Prevention (CDC the number of deaths occur due to excessive alcoholism in the United States is increasing day by day. (Esser et al., 2014). Due to excessive drinking and alcoholism around one among ten person dies and their age is usually estimated between twenty (20) to sixty-four (64) years, which means about 2.5 billion lives have been lost due to alcoholism alone in United States during the years 2006 till 2010. There a numerous reason that can be considered to be the cause of drug abuse and drug self-administration which can slowly lead a person towards drug addiction, multiple problems in todays' life can convince a person to use drugs and slowly they are becoming addicted to them. Such reasons can be influenced by psychological issues, biological factors as well as environmental factors. People usually take this path of drug use to avoid certain stress conditions or the find a temporary escape from their problems. But in actual

way this drug usage can reduce stress at that point also result in the actual increase of stress on daily basis.

There are some types of reaction of some individuals towards some sort of pressures from the friends, colleagues or their families. There are two factors that can describe this behavior of drug administering, in which one is a "drug-centered" in which environmental pressure is responsible for drug-taking behaviors while the second one is the "individual-centered" in which these types of behaviors are a result of biological characteristics (Piazza & Le Moal, 1996). There is a strong association between the drug abuse and stress.

Most of the previous studies prove the connection between drug abuse and stress is very strong and they are related directly to one another. There are many animal studies which showed animal behaviors in stressed conditions which are more towards self-drug administration. Most of human studies and clinical observations also showed that stressed to be one of the major causes for drug usage. Various changes occur to the human and animal brain when stressed such as neuropsychological, physiological, neuroanatomical, neurochemical and physiological. These changes occur by the use of psychoactive substances, multiple drug usage and they cause major changes in biological systems and resulting in major health issues (Gordon, 2002).

It is a psychiatric disorder that involved with drug addiction and it is related with the damaging and maladaptive behaviors that somehow causes upsetting consequences for the affected individuals their families and overall societies (Enoch, 2011). In 1990's the Origin of ACE study an article was published in which the relationship between ACE and obesity was measured. Every other person among 186 consecutive patients were abused at work, home or other places which in turn was leading them to sleep eating disorders and making them obese (felitti et all, 2019;14)

Someone whose homeostasis get disturbed after a repeated exposure to some sort of stress that initiates anticipatory and physiological responses and the person is unable to return to the normal homeostasis again is known as stressor (Burke & Miczek, 2014). A cycle of suffering can also be recognized in the stressor and due to which the individual's ability to handle with the stressed conditions decreases even in the ordinary situations (Tavolacci et al., 2013a). These stresses can be occurred due to any life events such as childhood abuse, childhood trauma, parental divorce any conflict or death of any loved ones. Chronic stress is a major risk factor for drug abuse and addiction. This is because stress affects the brain's reward system and can lead to cravings and compulsive drug use. People who are under a lot of stress may also be more vulnerable to peer pressure or other social influences that promote drug use. Additionally, drugs can affect the body's stress response system, which can make people more vulnerable to stress-related health problems. For example, Chronic drug abuse can lead to the certain abnormalities in the person normal body functions which in the end may lead to sleep disturbances, insomnia or chronic diseases or might result in increased stress levels.

Overall, drug abuse and stress are an unsafe combination that can lead to serious health problems and even addiction. If someone is struggling with the drug abuse problem it is important for them to seek help so that the problem can be reduced or eliminated timely before it becomes hazardous to them.

The role of stress is one of the major factors among most of the other common problems such as psychological, biological and environmental which can be a cause to make a person more vulnerable to drug use. The factors that can affect stress are environmental, health conditions, acute physiological responses, sudden changes that leave a mark on a persons' personality, health conditions, etc. These factors are mostly potentiated by long-term developmental changes. Multiple theories by many researchers on addiction states that stress (acute and chronic) has major role in use of addictive substances (Tomkins, 1966; Russell and Mehrabian, 1975; Leventhal and Cleary, 1980; Shiffman, 1982; Marlatt and Gordon, 1985; Wills and Shiffman, 1985; Koob and Le Moal, 1997).

In a way, it is a kind of a bodily response towards challenges. Stress may be considered beneficial if it aids in successful progression towards and meeting a deadline or if it can be used to circumvent and/or overcome unwanted and/or potentially harmful situations but on the other hand it may become

detrimental if it stressful conditions and stress itself lengthens. The American Psychological Association (APA) distinguishes stress between itself and divides it into two major categories, **acute stress**, which is temporary, and may fade away rather swiftly, whereas, the other one is a **chronic stress** which does prolong itself and has longevity in its persistence (Stress and Your Health: MedlinePlus Medical Encyclopedia, n.d.). These types are categorized differently in terms of features, longevity, indicators, and treatment approaches. Acute stress seems to be more prevalent which generally characterizes itself as short-term, and is frequently a result of reactive thinking generating from "the demands and pressures of the past ages usually projected demands and pressures of the coming eras". Chronic stress, however, is an enduring type of stress which can be considered by feelings of futility, despair and desperation (APA, 2011).

Considering the psychological and inner level, people happen to, rather continue to, find it easier, and much cheaper, to opt for the hallucinatory experiences provided by the psychoactive substances as means to escape the physical or mental hardships, in whatever form, that they may be facing in their lives. People who may have faced and become victim of abuse in their childhoods or as an adult, in any form or manner, which may have persisted for a longer period that anyone could have endured, happen to become statistics belonging to category of individuals who consume alcohol and drugs at much higher level than those absent with such negative experiences. This further becomes a reason, rather cause, for such victims to participate in greater numbers to participate in and / or commit felony and crime, and develop an irregular behavior. Furthermore, and in addition to this, evidence suggests that youth who have been found guilty of and are in prison, readily, in their interviews or statements, report usage of drugs (Dembo et al., 2000) which not only includes drug abuse but with drugs alcohol usage as well as illicit substance usage among their families, and also mental health issues in the families, and criminal activities among their family members. To the other end of spectrum of examples relating to psychological relief, drugs are consumed to be a source of release for the consumer from the physical and mental agony of physical and / or sexual abuse from their own relatives and kin, colleagues, bosses, or other subjects of the social environment of their own or as a whole. There is a study in relation mostly to the female victims (Seifert, 1999) shows that the consumption of alcohol was found among half or less than half of the cases; while the consumption of alcohol along with the drug and illicit substance was also found, it was also stated that alone drug usage cases were more than that of alcohol usage cases.

There can be some other reasons which causes the stress that included toxic relationships, disadvantaged neighborhood and some sort of sufferings from some social stigma (Boardman et al., 2001). A study was performed that proves the connection between sufferings caused during childhood, stress in the early years of life with consumption of illegal substances and consequent abuse and addiction that it entails (Moustafa et al., 2018). In another study it was proved that people above the age of 50 years that are drug addicts had gone through some sort of adverse childhood experiences (ACEs) that proves the association between these two parameters (Choi et al., 2017). ACE can be categorized in different categories like psychological, physical, sexual and household dysfunction (Vincent J Felliti:1998). Generally speaking, seven risk areas were highlighted, studied and quantified with the result showing that it was indeed drug abuse being the most common among life risking obesity, excessive smoking, physical inactivity, depression, attempts to commit suicide, alcohol consumption, any drug exploitation, drug exploitation in parentages, a high and / or lifetime involvement of / and with sexual partners, and a medical history of having any sexually transmitted disease (STDs) (Vincent J Felliti: 1998).A significant relationship was found between persons who experiences some sort of early life stress or trauma with substance use and other risky behaviors such as poor physical and mental health in a landmark study performed in 1900s (Butler et al., 2018). Bad outcomes are in direct relation with ACEs. Recent studies show that, there are many children in general who are more likely to experience at least four ACEs (Clarkson Freeman, n.d.).

1.2. Research Gap

The adverse impact of ACEs caused to health are largely due to stress (Thoits, 2010). According to some studies done by (Kendall-Tackett, 2002; Anda et al., 2006, Leitenberg, Gibson, & Novy, 2004), the chronic stress during a young, impressionable time duration of one's life could have unswerving and lifelong impact on the body's and brain's stress-response systems, making it more challenging to manage stress later in life. Some academics contend that stress in adults is a result of childhood challenges. The fact that stress is more common in elderly people who have had several ACEs lends credence to this notion (Mc Elroy & Hevey, 2014).

Work on ACE has started about three decades ago when the obesity was also termed to be result of high number of ACE cases. (Flettii et al, 1998). A wide dedication by Naomi Howard for ACE study has been done in which household dysfunctions; such as criminal activity at house, battered mother or addict parents etc. an ACE parameter may lead to deaths therefore increasing the mortality ratios in the U.S (Permente journal, 2004).

A model created by Koob and Le Moal in 1997 connected the negative and positive effects of drug use. The outcomes of preclinical experiments served as the basis for the model. They held the view that as people's problems grew worse, so did their drug use, eventually becoming a problem. They contend that stress changes the brain's reward pathways, making people more receptive to the pleasurable effects of drugs. It is more probable, than not, that people become infatuated and wholly occupied with drugs consumption as a result of this. Stress may therefore "prime" the brain's reward circuits, making it easier for people to feel good after taking drugs, especially in those who are more likely to do so (Piazza and Le Moal, 1998). In fact, studies on humans show that people respond differently to substances like nicotine, alcohol, and psychostimulants (Gilbert and Gilbert, 1995; Schuckit and Smith, 1996; Sofuoglu et al., 2000).

There is a surge in research in the field psychology of interest as researchers across psychology are learning and conducting researches on how interest pertains to important issues in their field. Like many developing areas of research, the study of interest is prone to breaking into smaller studies, like interest and its impact on arts, education, vocations, personality, etc. One thing to consider, for future research, is how to group these different areas so as to produce a coherent and conclusive result. Is it possible for the study of brief spark of feelings of interest enlighten how and for what reason do some people are usually more inquisitive than other people? What is the part and role of interest across and in the lifecycle? What causes development and persistence of some interests, hobbies, and professions? Silvia, Paul J. (2008).

The variables, Stress and drug abuse, were used by multiple researchers in their studies, some of which has shown that work on multiple strong risk factors for the stress such as internal disorders like depression and anxiety disorders have been less researched on and explained, whereas, for the substance abuse, more studies have been conducted on it which shows that disorders such as external behavior and issues, for instance, disorderly conducts, oppositional defiant disorders and attention deficit hyperactivity have been considered as strong influential risk factors of illegal substance usage (King S. M., Iacono W. G., et al 2004).

In Pakistan, work on ACE has been done in the past decade. A Bachpan cohort study at Kalar Saidan was done on the women going through postpartum phase which concludes that 80% women have gone through depression due to unidentified type of ACE resulting in preterm delivery, depression, fetal mortality etc. (Katherine et al, 2021) another cohort study shows the positive relation between ACE and perceived stress done in Pakistan. (Ikram N, Frost A, LeMasters K, et al ,2022).

The current study which focuses on analyzing whether and if adverse childhood effects are linked to higher levels of stress in young adults, causing major drug abuse problems in current generations and role of emotional interest will be measured.

1.3. Research Questions

This study deals with the question of following nature:

1. How does adverse childhood experience lead to drug abuse?
2. What is the role of stress on drug abuse?
3. What is the effect of emotional interest on drug abuse?

4. How does Ace is linked to stress?
5. What is the collective effect of Ace and stress on drug abuse?

1.4. Importance of Study

Many studies (Tavolacci et al., 2013a; Enoch, 2011; Harold W. Gordon, 2002; Wakeford et al., 2018; Choi et al., 2017; Anda et al., 2006; Burke & Miczek, 2014; Allem et al., 2015; Boardman et al., 2001) etc. shows the evidence that -there is a solid and positive relationship and connection between the adverse childhood experiences (ACEs) and substance abuse. However, multiple studies have shown positive relation between stress and drug abuse. this research is pioneer in investigating the relationship between variables that include adverse childhood experience (ACE), stress, emotional interest and drug abuse. This study will be a new addition in this field by using a set of new variables. This study will show that how things that happen to individuals in their lives back days continue to affect the individuals even after these incidents. Some of the incidents leave a lifetime mark on the person's mental health that it leads towards some bad behavioral and physiological responses. Humans try multiple things to overcome these responses and one of them is a substance use. This study will help to see insights in the field of ACEs. This study will also help to construct a relationship between ACEs and drug abuse by measuring new variables that does not have been used collectively in any study. This study will assist in checking the role of adverse childhood experience (ACE), stress, emotional interest in developing a behavior that includes drug abuse. The drug can be of any type.

1.5. Research Objectives

The main objectives of this research study are stated below:

1. To find the effect of the adverse childhood experience (ACE) on drug abuse
2. To find the effect of stress on drug abuse
3. To find the effect of emotional interest on drug abuse
4. To find the collective effect of ACE, stress and emotional interest on drug abuse
5. To find the effect of ACE on stress

1.6. Theoretical Foundations

Sroufe and Rutter (1984) presented the very first definition of developmental psychopathology as "the study of the origins and course of individual patterns of behavioral maladaptation, regardless of the age of onset, regardless of the causes, regardless of the transformations in behavioral manifestation, and however complex the course of developmental patterns may be". The field is motivated to investigate the mechanisms leading to adaptive outcomes that take place in spite of high peril or danger, therefore it is not restricted to researching those who exhibit maladaptive results (Cicchetti, 1993). Therefore, a key objective of developmental psychopathology is the investigation of the many processes and situations that result in favorable or unfavorable outcomes for individuals who are at risk.

The transactional model (Sameroff, 1975; 2009) along with the family systems theories (Bavelas & Segal, 1982; Broderick, 1993; Kerr & Bowen, 1988) emphasize on the interaction of families with one another and subsequently with community they live in causing impact to the wellness of the society as a result. Functionality and growth of families as a whole and individual family member is believed to be impacted and influenced by both internal and external factors (Broderick, 1993; Sameroff, 1975; 2009). Moreover, this school of thought opines that family values passed on through generations impact and cause attachment to certain beliefs and values that create a belief and value system (Kerr & Bowen, 1988). Investigating the result of caregivers' childhood trauma on both their own and that of their offspring's mental health is plausible considering this suggestion. These theories also place importance on the impact of relative and familial factors on children's mental growth and personality development (Broderick, 1993; Sameroff, 2009)

1.7. Definitions of Study Variables

1.7.1. Adverse childhood experience (ACE)

Situations and / or conditions that are or maybe stressful or traumatic, that occur before the age of 18 years and have an adverse and prolonged effect on health and wellbeing of an individual are termed as Adverse Childhood experiences (ACEs) (Adverse

Childhood Experiences (ACEs) - National Child Abuse Prevention Month - Child Welfare Information Gateway, n.d.). ACEs include abuse relating to physical body, psychological and mental, and sexual abuse, as well as dysfunctionality in a household structure and performance, such as issue of mental illness in a parent or both of them, domesticate abuse in marital affairs termed as "Intimate Partner Violence" (IPV) and addicted or separated parents (Permente k 1998)..

1.7.2. Stress

The terminology 'stress' was first created and put forth by endocrinologist Mr. Hans Selye in order to describe the "nonspecific response of the body to any demand" (Selye, H., & Fortier, C.1950) The definition that is rather accepted globally is "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus, R. S., & Folkman, S. 1984) which refers to the procedure that is understood to contribute to the onset and maintenance of numerous disorders that are related to stress.

1.7.3. Emotional Interest

The enthusiastic advancement, rise of the involvement, expression, understanding and control of feelings from birth and the development and alter in these capacities all through childhood, puberty and adulthood is known as emotional interest. The improvement of feelings occurs in combination with improvements relating to neural, mental and behavior and occurs and escalates inside a particular social environment (Emotional Development | Definition, Examples, Children, & Adolescence | Britannica, n.d.).

1.7.4. Drug Abuse

Substance abuse or drug abuse is the use of drugs by methods and amounts that causes any sort of harm to the body and the people around them. Substance-related disorder can also cause this condition. There are multiple types of definitions that are being used in public health, criminal justice and medical contexts. The drug abuse can cause physical, social and psychological affects that can lead towards the crime incidences (An Overview of the Problem Drug Use (PDU) Key Indicator | www.Emcdda.Europa.Eu, n.d.)

1.8. Outline of Report

The main purpose of this study and research is to analyze the moderating role of stress and mediating role of emotional interest they have on the connection among adverse childhood experience and drug abuse. As you will certainly realize in the coming chapters, this thesis is intended to take a more expository tack.

Chapter 2 presents forth an all-ranging and full literature analysis on adverse childhood experiences, stress and drug abuse, further strengthening the discussion taken upon in Chapter 1 of the topic's past history, targets, and significance and bearing.

Chapter 3 is where we further dive into the methodologies of our studies and the premises that take shape and form as a result of our analyses and investigation.

A detailed quantifiable and arithmetical examination of the data is offered in Chapter 4 of this thesis. All of the data presented here is done so in tabular forms to assist in ease of understanding. The findings and their reasons are studied and analyzed in detail in Chapter 5 which also goes on to explain the final results and discussion thereon of the limitations of the experiment suggestions for improvement in the future.

LITERATURE REVIEW

2.1. Adverse Childhood Experiences

Over the last two or more decades, multiple studies and researches have been conducted to find a relationship between adverse childhood experiences (ACE) and health consequences. With adverse childhood experiences (Aces) and its diversities for multiple health risks, the counter adverse childhood experiences (counter Aces) are very less discussed. Children may go through long term problems with their adverse experiences during their childhood. As they are more susceptible towards long term issues of adverse experiences, such as addiction, chronic diseases, poor life expectancy and low quality of life or suicidal and homicidal thoughts which occur when they are affected by abuse, negligence,

isolations, childhood traumas, bad house environment or other traumatic issues. (Karatekin,2019; Chang, Jiang, Mkandarwire, & Shen, 2019; Dong, Anda, Dube, Giles, & Felitti, 2003). The origin of ACE study was done at Kaiser Permanente clinics 1998, where Adverse childhood experiences were related and studied by various other parameters, including women, stressed persons, obese patients, cardiac patients etc., which result in mostly the positive relation among Aces and other factors. (Anda et al., 2006; Salinas-Miranda et al., 2015),

The relationship between adverse childhood experiences (Aces) and other health consequences are: Adverse childhood experiences and sleep disturbances are strongly associated (Salinas-Miranda et al., 2015; Windle et al., 2018). According to (Majer, Nater, Lin, Capuron, & Reeves, 2010) adverse childhood experiences are linked with impaired executive functioning and inferior perceived mental and emotional health, (Nurius, Green, Logan-Greene, & Borja, 2015). shows strong connection between adverse childhood experiences with high stress as well aa anxiety levels. Lack of family understandings and lower gratitude levels were also associated with adverse childhood experiences. (Wu, Chi, Lin, & Du, 2018), (Savla et al., 2013).

Adverse childhood experiences were studied since ages and have tremendous effects on the wellbeing of children as well as adults. Adverse childhood experiences (ACE) can be explained by multiple theories which shows the result thereof of adverse childhood experiences along with the long-lasting effect it has on the wellbeing and health of an individual. A few theories are explained as:

1. Stress theory: This theory explains the effect of adverse childhood experience can cause chronic stress in a child which can drastically affect a child's development both physical and mental. Increased stress levels can cause the induction to release the hormone cortisol, which if released for long time can become the cause for several health conditions such as cardiovascular issues, depression, cancers, etc.

2. Attachment theory: According to the attachment theory the stress that is caused by any kind of adverse childhood experience can strongly influence the formation of bond between child and their parent or caregivers. An untrust child or the one who faces abuse, traumas of any kind or has parental issues (divorced or separated), may find it hard to build trusted positive relationships in their life later on. This mistrusted behavior can strongly affect their emotional health and well-being.

3. Developmental trauma theory: According to the developmental trauma theory the adverse childhood experiences can disturb or delay the normal developmental phase of a child, which leads to an increase in a number of problems including learning issues, social issues and both mental physical and emotional issues. Children with traumatic or abusive histories may face problems with emotional regulation, impulse controls and other executive functions that are important in their life later on.

4. Psychodynamic theory: According to this theory the effects of Adverse childhood experiences are deep-rooted in insensible psychological processes. Mostly the children who are exposed to trauma can develop multiple psychological defenses to protect themselves from emotional pain, which can lead to problems down the line at later stages in life, which may include, but is not limited to, developing depressive state of mind, anxiousness, and post-traumatic stress disorder (PTSD). Such children usually keep them distant from other so hide their emotional states from other, thus being rude or isolated which in turn affect their mental, emotional well-being.

5. Behaviorism: According to this theory the adverse childhood experiences can also have strong impact on behavior of a child., leading to multiple patterns of aggression, substance abuse, and other maladaptive actions, to overcome their trauma episodes. Children who experience trauma may struggle with self-control and may be more prone to acting out or involving in risky behaviors that may lead to death.

2.2. Stress

A stimulus that disturbs the homeostasis that causes anticipatory behavior and other physiological responses after a series of repeated exposures to the same situations that causes this affect and it reduces the ability of a person to cope with the change in

homeostasis is known as a stressor (Burke & Miczek, 2014). A cycle of distress can also be established due to the stressor through which individual learns to cope with the situations but this ability reduces with the time (Tavolacci et al., 2013b). causes the self-reported sub syndrome that affects the control over stress and increases the cravings of individual towards the These situations and circumstances can be any negative events of and in life such as being physically or mentally abused at early stages of life, demise of a closed / loved one, conflict, separation or divorce of parents and the daily events such as bad neighborhood, toxic relationship, uncomfortable working environment or any other social stigma that causes any sort of psychological or behavioral effect on the individual (Low et al., 2012)(Boardman, 2004)

Studies proved that the individuals who use addictive substances later in their life had been faced any sort of early life stresses. This also causes the self-reported sub-syndrome, that affects the control over stress and increases the cravings of individual, towards the usage of multiple or poly-drug (Jaremko et al., 2015). The counter-activity against stress is important to ensure the survival of individual. Further, these responses are mediated by the Hypothalamic Pituitary Adrenal (HPA) axis, peripheral catecholamine systems and central corticotrophin releasing hormone (CRH). Risk of psychopathology that includes drug and alcohol addiction increases with the chronic activation of stress response (Enoch, 2011).

Studies performed on rodents show that the variations in the level of maternal care during the initial fortnight of life show association among difference levels of the Hypothalamic Pituitary Adrenal HPA axis response towards the stress. The development of central system is mediated by the rats maternal licking and grooming. It activates the behavioral and endocrinal responses to stress. Some studies also show that these changes inherit from mother to daughter that provides a variation of difference in approach and consequent response to stress from generation to generation (Carliner et al., 2016). Neuronal plasticity is affected by the early life stresses and it has very enduring and lifelong impact on the mesolimbic dopamine (DA) pathways. According to a study, these pathways show important associations with behavioral responses (Peña et al., 2014) and it can also mediate multiple effects associated with addictive drugs (Keiflin & Janak, 2015). All these studies show that the ACEs change the brain structures that are associated with the substance abuse.

2.2.1. HPA Axis (hypothalamus, pituitary, adrenal axis)

ACTH and cortisol secretion is regulated by the HPA axis throughout the responses to stress which indeed holds importance for the cognitive, behavioral as well as immune responses (Kuhlman et al., 2015). Under stressed conditions or situations, cortisol is secreted by the HPA through negative feedback and known as HPA axis deregulation (Hulme, 2011). If the individual is facing a prolonged stress, then it will cause abnormal changes in the glucocorticoid receptor density. Positive feedback can also initiate negative feedback for HPA axis during the chronic stress conditions and this is demonstrated by animal studies. Basolateral amygdala, that is a part of amygdala, initiates the positive feedback that stimulated a feed-forward loop through HPA axis. The basolateral amygdala generates anxiety responses and this loop in turn causes rise in the anxiety responses through which this study is supported (Hulme, 2011). HPA axis is also got affected through both acute and chronic stress conditions and it also reinforce responses in other brain parts and the effects include starting of drug use, maintenance, withdrawal and relapse of this process (Hulme, 2011). It is found that the drug addiction, HPA deregulation takes place that leads towards the inability to respond against stress and to adapt one-self for such situations (Hong et al., 2016). Some studies show that the high levels of cortisol are find in individuals that are opioid-dependent as compared to the healthy individuals and control groups used in the study (Bunce et al., 2015). From the studies, it is shown that the HPA axis can be inhibited by the endogenous opioid system with the help of MU receptor that will inhibit the CRH (Levran et al., 2012). In cocaine and heroin dependent persons; there are hypo-responsive HPA systems (Hulme, 2011). There are also significantly high levels of cortisol, ACTHS and

prolactin are present in individuals using cocaine with significantly lower levels of homovanillic acid as compared to the control patients (Gerra et al., 2008).

Now studies are being done on finding the relationships between parental, perinatal and childhood stress and vulnerability towards drug abuse. Now animal models are being used for these kinds of studies that will help to find new knowledge in this field of study and will fill the research gap. Some of the other factors which plays important part in this study are described below:

2.2.2. Genetic

In literature, there are multiple factors are being described that have influence on the children's development that are defined as the nature-nurture debate. There are significant points are present on the nature side that includes genetic components, normal and disturbed behavior that also include. For this purpose, twin, family and adaption studies were demonstrated that checks the drug use, parental conflicts, divorce of parents and behavior of their twins developed from the same situations (Gordon, 1994). From these studies, it was concluded that the genetic variance is almost 50% to 60% higher in these cases. Sometimes it is even more than that. It is also concluded that there is a strong association between genetics and environment and it clears the effect of environment on genetics. For example, if an individual is brought up in an environment in which his parents show alcoholic or anti-social behavior than the individual id more likely to become aggressive. It shows the effect of environment on genetics (Cadoret et al., 1997).

2.2.3. Environment

As many studies support the concept of interaction between environment and genetics but their relative contribution is still unknown. There is difference between genetics from different types of environments such as shared in which family plays important role and unshared environment in which neighborhood and friends are involved. The genetic variance in shared environment is less because the bad factors of a house make siblings more different from each other (Maccoby, 2000). From this and many other studies it becomes very important to explain more precisely the interactions between behavior, genetics and two types of environments that are shared and unshared. A lot of studies are performed to measure the factors that induce stress and responses to stress in pre-school and school-age children who are normally functioning. Novel stimuli such as an active clown or a robotic toy are presented to toddlers and then their behavioral reactions and cortisol concentrations were assessed. The children who had an insecure relation with their mothers show an increased stress response (Schieche & Spangler, 2005). Child's temperament also plays important role in stress response that acts as a critical factor that is related with the HPA axis. The cortisol levels are more elevated in slightly older children that are young or have a school-going age and who are more extroverts as compared to the shy children of younger age (Davis et al., 1999). This study suggests that it is very important to study the environmental influence and temperament characteristics.

2.2.4. Orphanages

There are a number of environmental conditions for a developing child that can increase the stress in the environment. Most common conditions are abuse and negligence that have been reported in the families and the orphanages of the individuals. Many studies focused on the behavior of children who face negligence and abuse in their orphanages. But it is very difficult to every type of history such as mother's health, violence or pollution exposure in environment and many more factors regarding each and every child (Carlson & Earls, 1997). Children who are unaccompanied and the orphans that have been escaped from the war zones were studied as very important samples. More negative behavioral symptoms such as enuresis, eating disorders and sleep disturbances, etc. are seen in children aged between ages 4 to 7 who have escaped from the war zones as compared to the children who have even a single parent in the same war zones (Wolff & Fesseha, 2005). All of these indications and signs disappeared at the age of 5 and after that depression and anxiety overtook them found in follow-up studies. These follow-up studies also compare children of two other orphanages and the results

shows the associations between better environment and better performance.

2.3. Emotional Interest

Interest can be a strange emotion as multiple theories don't consider it to be an important one, whereas, some don't even consider it to be an emotion to begin with. Charles Darwin first described Emotions in his book "Emotional Expressions" and categorized it as Knowledge emotions. (Silvia, Paul J. 2008).

Emotional interest (EI) is now becoming an interested topic for psychologists, consultants, educational researchers and management researchers. (e.g., Shapiro, 1997; Weisinger, 1998). Employees from various organizations are being dispatched for various emotional interest training courses as it has been proposed that emotional interest has major impact on mental health of people as well as their physical health, not only that but also on the accomplishments they make in their profession and career, (e.g., Goleman, 1995). Most of the developing theories about emotional interest suggest that it is important for emotional and social wellbeing for leaders as well as followers or employees as it has great influence on cognitive and behavioral skills. (Boal & Whitehead, 1992). while a very little work has been done to show the evidence of relationships between emotional interest of followers, leaders and their job outcomes. Focus in development of interest can be attained by two control systems: Emotional Interest and Cognitive Interest. Emotional interest explains that people pay more attention to those activities that are enjoyable to them, while the cognitive interest is more towards satisfaction which is gained by engaging in a task and completing the tasks. For example, interest can be different for different age grouped people such as for younger people they mostly link their emotional responses to interest-related stimuli, while the elder students usually link their cognitive responses to changes that satiates and provides increment to their interest in terms of quality.

Emotions were defined by Gross 1998 as "the adaptive behavioral and physiological response tendencies that are termed forth directly by evolutionarily significant situations". The emotions are inclinations towards replies and responses and can be controlled, they can be intentional, deliberate and accomplished by a number of changes. The responses can be modified by diversifying the effects of each emotion when they are expressed and how to express them also the way of experiencing these emotions can be influenced. (Gross, 1998).

To regulate or normalize an emotion the knowledge about personal emotion is important, i.e., self-emotion appraisals (SEA), the responses we display as a result of emotional stimulus are also caused by the emotions the others express and the ability to understand these emotions is termed as others emotional appraisals (OEA), while to modulate others' emotions as how a person can express and how can we regulate these emotions are regulation of self-emotion appraisal (ROE), these are explained by (Gross, 1998) in his book. So according to emotional interest and theories and studies pertaining to emotional regulation, people with high levels or tendencies to regulate their emotions also have the strong potential to understand and regulate them as well as other's emotions.

Gross (1988a) explains emotional response tendencies can be controlled in two different ways; One is antecedent- concentrated emotion regulation (the input to the system), while the other is response- centered emotion regulation (can be controlled by its work).

Antecedent- centered emotion regulation can be achieved by four-way situation selection,

- Emotional impact: the situation in which a person connects or ignores people or that situation on the basis of their prospective.
- Situation alteration: the situation in which a person in order to change his or her emotional impact changes or tries to modify the situation or medium.
- Attention Deployment: the situation in which a person turns interest or attention towards or away from a person in order to leave an impact on their feelings.
- Cognitive Modification: the situation in which a person examines whether the situation is in his or her hand or either they are capable to manage the situation by being capable of changing one's feelings.

While response concentrated emotion regulation also includes multiple ways in which a person may enhance, decrease, drag, or shorten ongoing emotional adventures for specific purposes. What form of evaluations cause interest, that is, if emotions or interests generate from such evaluations and appraisals? In the research I have conducted, I have formed an opinion that interest is usually a result of two types of appraisals (Silvia, 2005b; Silvia, 2006).

The first of these appraisals is an assessment of an event's newness complexity, meaning evaluation of an event as new, surprising, intricate, somewhat incomprehensible, enigmatic, or unclear. This is not unexpected: Intuition and research conducted over a span of numerous years (Berlyne, 1960) have shown that such types of occurrences can be a reason for attention and interest. The second of the types, though less apparent appraisal, is an evaluation and understanding of how an occurrence is or can be made understandable or is understood by making reason of it. Appraisal theories might call this type a form of appraisal with potential for coping as it consists of people who consider if they possess the skills, understanding, knowledge and resources with which they may process it and deal with it successfully (Lazarus, 1991). As far as interest is considered, people come across events and situations that are or could be unexpected and complex and they try to comprehend it. Briefly stating, people find it interesting and are curious to make head and tail of events that they believe is new and somewhat challenging, all but being in their domain of expertise

Interest is usually linked to the association with the knowledge about matters and the practice and skills. Interest has emotional values and cognitive magnitudes (Krapp, 2007), in which emotional values include experiences of pleasure and excitement, the forms and the directions to which practice and understanding of anything is related, while, for cognitive changes a wish or need to gain knowledge about something is linked. Interest based studies are usually focused on emotional dimensions such as, assessing students and their preferences towards learning and enjoyment (e.g., Trauwein et al, 2006). The creation and expansion of interest is termed to be divided into physiological control systems and cognitive control systems. (e.g., Carmichael et al. 2010), Krapp 2007) and due to such developments, it is proposed that interest undergoes several changes that are mostly qualitative. These changes are mostly positive thus make more stringer emotions. (Hidi and Renninger 2006),

2.3.1. Interest and its Development

Interest and motivations are the terms linked inseparably (Murphy and Alexander 2000) in which interest is more closely linked to self-perceptions (Dewey 1910), and interest is discussed by most of the researchers as a key analyst of accomplishments (Heinz et al.2005). the properties of interest are state- and trait- like. While learning new things people can experience different levels of interest termed as **situational interest**. (e.g., Carmichael et al. 2009), mostly researchers claim that when repeatedly the phase of situational interest continues, levels of interest turned into profound and lasting interest, defined as **individual interest** (Alexander 2003; Hidi and Renninger, 2006). And according to (Krapp, 2007) the transfer from situational interest towards individual interest is controlled and guided by the emotional and cognitive interest's psychological control systems which are able to produce certain major qualitative changes in a person's interest (Hidi and Renninger 2006).

The concept of **"social intelligence"** is believed to have given birth to the ideology behind emotional interest as was first coined by (Thorndiker, 1920). He happened to also define the term social intelligence as ''the ability to understand and manage men and women, boys and girls to act wisely in human relations''. Subsequently, another researcher, Gardner, in the year 1993, counted in the term "social intelligence" as "being one of the seven areas in his theory of multiple intelligences". As per Howard Gardner, social intelligence is made up of a person's interpersonal and intrapersonal intelligences. Intrapersonal intelligence is related to person's intelligence in undertaking activities and responsibilities pertaining to oneself, and is also the ability to ''symbolize complex and highly differentiated sets of feelings''. Whereas, on the other hand, interpersonal intelligence pertains to

one's intelligence in taking care of matters relating to others and is the ability to "notice and make distinctions among other people and, mostly, among their moods, inspirations, personalities, motivations, temperaments and intentions".

The word "emotional interest" was first proposed by Salovey and Mayer (1990) to relate to the capability of an individual to deal with and confront with their emotions. It was defined by Salovey and Mayer as "the subset of social intelligence that involves the ability to monitor a person's own feelings or emotions as well as others feelings and emotions, to make them distinguishable and to use the gained information as its result thereof, to act as a compass and guide to one's cognitive abilities and understanding and, consequently, the resultant actions".

They described Emotional Intelligence as having being composed of four major dimensions:

1. Appraisal and expression of emotion in the self (self-emotional appraisal [SEA]).

Self-emotional appraisals SEA can be described as a person's ability to understand and explain their own deep emotions casually. These persons can easily sense and understand their own emotions very well before most of the people.

2. Appraisal and recognition of emotion in others (others' emotional appraisal [OEA]).

The Other's emotional appraisals (OEA) can be termed as a person's ability to sense and understand the emotions of other people around them. These people can be able to read mind of other people around them very easily and are overly sensitive to the emotions of other people

3. Regulation of emotion in the self (regulation of emotion [ROE]).

Regulation of emotion (ROE) usually used for the people who can recover rapidly from and psychological distress or shock than others. Which means that they can regulate their emotions easily and rapidly.

1. Use of emotion to ease performance (use of emotion [UOE]).

Use of emotion can also be done in a positive way by being more constructive or creative in their activities and performances by overcoming one's emotions and using it in advantageous manner.

2.4. Drug Abuse

The use of smokeless tobacco in adolescence has been studied infrequently and the struggles to ban it in some countries is being done to overcomes the hazards caused by it. Use of alcohol by adolescents is increasing day by day, the link between alcohol use and depressive disorders in adolescents is being understood as both have been proposed to be considered as major risk factors for mortality, i.e., suicides (Galaif E. R., Sussman S., et al, 2007).

An increase in alcohol consumption may be considered as it might relieves from depression or any kind of stress disorders, as it has been stated to have positive impact on mood while overall leading to more depressive disorders thus stress and alcohol consumption might link negatively. (Sher K., Grekin E., Williams N. 2004)

Studies were done to find out the association between alcohol use in children or adolescents and early depression symptoms, usually the high levels of conduct disorder symptoms were seen in association to substance use (Pardini D., White H. R., Stouthamer-Loeber M.2007).

For example, Finnis, twin studies from adult population in which analysis of depression and smoking was done casually by (Kendler et al. 1993). In the study importance of genetic factors and their effect on the association between depression and substance abuse was done, which explains the importance of understanding the role of familial factors such as dispositional genetic factors, childhood environment in these developmental relationships.

There are many studies that shows that individuals who have faced maltreatment and some sort of stresses shows associations with higher chances of developing some psychopathological behaviors that includes drug and alcohol abuse (Enoch, 2011)(Carliner et al., 2016). According to a study performed by (Wu et al., 2010) it is proved that the individuals/patients (N=402) who are using drugs

has been reported to be exposed to some sort of childhood traumatic events. Another study also shows that people who are using drugs includes 60.2% women who were sexually abused, 55.2% face physical abuse, 45.9% people were emotionally abused and apart from this 83.4% were emotionally neglected while 59.7% were physically neglected. Through this study it is concluded that these five childhood traumas have high prevalence in drug abusing as compared to general population (Medrano et al., 1999). Another study also shows that the heroine users have significantly higher rates of experiencing physical punishments, physical neglect and emotional and penetrative sexual abuse. These childhoods maltreatment experiences affect the course, duration and severity of alcohol abuse (Lotzin et al., 2016). The individuals who are seeking treatments for substance using has been reported to experience childhood maltreatment of any type such as physical, emotional or sexual abuse (Samokhvalov et al., 2010). In the studies when the history of potential confounders such as who are using alcohol or another type of drug in last one or two generations experienced two or more than two ACEs in their life (Pilowsky et al., 2009). Another study was done by Carliner et al. (2016) shows that people who have experienced any type of traumatic events before the age of 11 shows significant associations with the use of marijuana, prescription drugs, cocaine and other types of poly-drugs uses. Exposure to other violent events such as physical assault, sexual assault, kidnapping and mugging shows higher associations with high risk of drug abuse (Carliner et al., 2016).

Other studies also show the higher associations between severity of drug use and emotional abuse in the patients of alcohol dependence who are seeking treatment of alcohol dependence (Samokhvalov et al., 2010). Another study was performed that shows that people who have experienced emotional abuse, sexual abuse or emotional neglect has higher associations with high intensity drug abuse(Lotzin et al., 2016). From all these studies and many more, it is concluded that treatment taking alcohol dependent patients has experience ACEs and gets less treatment benefit (Huang et al., 2012) (Greenfield et al., 2007) (Lotzin et al., 2016).

2.5. ACE and Drug Abuse

Deaths due to adverse childhood experiences were previously discussed by several researchers but the relationship between children's exposure to emotional abuse, physical abuse and household dysfunction and health risk behavior and disease in adulthood were discussed by (V J Fletti et al 1998) in The ACE Study. In the study he categorized adverse childhood experience into seven main categories in which childhood abuse is defined into three and household dysfunctions has been divided into four categories. These categories are:

Abuse by category

- Psychological
- Physical
- Sexual

Household dysfunction by category

- Substance abuse
- Mental illness
- Mother treated violently
- Criminal behavior in house hold

According to V J Felitti childhood abuse may present in different forms and that become toxic and may lead to death thus being the cause of increase in mortality rates throughout the world. He explained that the conditions such as drug misuse, criminal activities or violence among spouses in any household may be the cause of any kind of abuse childhood abuse.

Felitti further explained that any kind of the adverse childhood experience categories when experienced by children or observed by them may cause the increase in childhood traumas which may lead to drug abuse, suicidal thoughts or death. He compared persons who have experienced one or more than one categories of childhood hood abuse to the persons who haven't experienced any and stated that those who experienced Alcoholism, depression, anxiety, drug abuse and suicide attempt or more categories had around 4 to 12 times increased chances of health risk and diseases. Alcoholism, depression, anxiety, drug abuse and suicide attempt; while smoking and poor health hygiene had 2 to 4 folds increase in health risks and

diseases also included Sexually transmitted diseases; 1.4 to 1.6 times increase in obesity and physical inactivity was seen among those who were harassed or being abused at work places or even at homes. However, there are several other diseases that can be caused by adverse childhood exposures these include: chronic lung cancer, ischemic heart diseases, chronic obstructive pulmonary disease (COPD), preterm deliveries, diabetes, hepatitis or jaundice, skeletal fractures, any type of cancers etc.

The categories discussed above are interrelated strongly, as a person who has gone through one of the categories usually have experienced the other categories too, so they are at various health risks such as tobacco smoking, severe obesity, physical inactivity, lack of physical activities, depression, mood, suicide attempts, alcoholism, multiple drug abuse, parenteral drug abuse, history of having a sexually transmitted disease or / and even deaths. The study also assessed the relationship between childhood exposures and disease conditions that are among the leading causes of mortality in the United States. (Mortality patterns U.S, 1993, 1996)

On the basis of discussions conducted above, I have developed following hypotheses:

H1: there is a positive significant effect of adverse childhood effect on the drug abuse

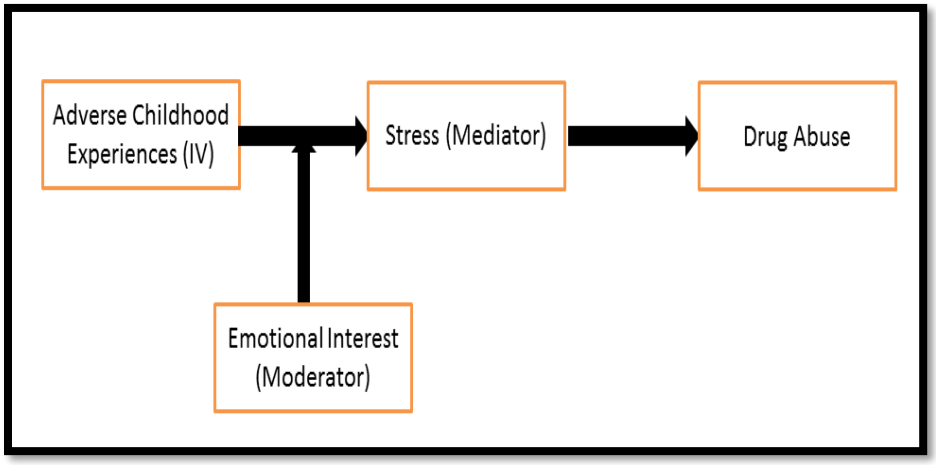
H2 stress has strong positive impact on drug abuse

H3: adverse childhood experiences have a positive impact on stress.

H4: stress mediates the relationship between drug abuse and ACE

H5: emotional interest dampens the relationship between ACE and Drug Abuse

2.6. Research Model



RESEARCH METHODOLOGY

3.1. Research Design

Every research, and study conducted, gives a big importance to its design and execution strategy which in turn happens to play a pivotal role of every study and it, nonetheless, gives a detailed outline about the research project and guides the researcher about hypotheses testing and gives detail information about the details of study under consideration. The project outline and the components of the study design such as empirical investigations, project relevant activities, experimental and scientific research are also discussed in detail in this section.

3.1.1. Nature of Study

The type of the study conducted herewith, is categorized as a casual study the components of which undertake to research on the and analyze the effects of adverse childhood experiences on drug abuse, while the mediating role of stress and emotional interest as a moderator will be evaluated along. The evaluation is based on the self-reported observation done for these variables. The data collection is quantitative type and it is the simplest most and cost-effective method. Quantitative method includes the data collection, data analysis and the observation of previous information. The

research procedure of study is done by distribution of questionnaires of the variables, collecting the data sample, then analyzing the data by use of software and then finally determining the reliability of the data.

The purpose of selection of quantitative research is because it is cost effective and it also allows us to evaluate the relationship between both types of existing variables, i.e., dependent and independent. The purpose of this study is to find out the relationship between independent and dependent variables which are adverse childhood experiences and drug abuse. Furthermore, the statistical and arithmetic aspect of this research study approach is performed in order to gather data, including both numeric and otherwise, form general conclusion from a group of around 300 people, which has been thoroughly sampled, that will represent the whole population. And it is a direct and convenient method for data gathering.

3.1.2. Study Setting

For the purpose of collecting meaningful data in this study, the questionnaire form was circulated among the respondents using the online platform such as google forms, as well as the filed survey technique was also used at some educational institutes. Also, the complete goal of the study and detail about the question were also explained in detail to clarify the study objectives. It was made sure to clarify the study goals to these respondents. Also, the ethical and privacy values were critically sought after and diligently maintained throughout the period during which the study was conducted, involving all the aspects of this research such as data collection, analyses and formation of conclusion thereon.

The research study under consideration here forth, is correctly classified as a field work involving research and examination and consequently, the participants of this study, who are selected to be students from universities of Islamabad, Rawalpindi and Abbottabad, were invited to populate the form containing the questionnaires in their respective universities. In order to achieve arithmetically accurate analyses on the collected data means of correlation analysis and regression analysis were determined to be used on the data that was collected by means of questionnaires that contained questions that were not open-ended and were aimed to be filled by the participants who could do so in a self-administrative manner with little or no assistance at all and easy to understand and comprehensible wordings.

3.1.3. Time Horizon

Data that has been collected in the study was cross-sectional. The data collection process was done throughout the study duration. The initial half of the period utilized for this study was strictly aimed at the complete and accurate collection of data which would be meaningful and helpful for the research conducted. Throughout the duration of that time, the data kept on pouring in from different participants belonging to different universities and locations. It was made sure to allow participants ample time and support to populate their forms and provide correct answers according to the questions, which consequently made it possible to gather a set of data which was more dependable and consistent with the what was aimed for.

3.1.4. Research Interference

There is a few or no research interference and this research is based on field study. Cross-sectional data has been collected in this study. Questionnaires of self-administered nature were used in this study and the purpose of making use of such type of questionnaires in the study was because of the fact that in the previous studies, a lot of the research analysts have made effective use of this technique for the purpose of collecting data in case of drug abuse. It is also a very cost-effective method and helps the respondents to set aside their biasness, If any. This methodology also allows the participants to fill the questionnaire forms in due time and in properly detailed manner.

3.1.5. Unit of Analysis

The accurate identification of unit of analysis is a task of utmost importance, it is used to achieve the desired goal of the study. Unit of analysis can be an organization or some individuals, depending upon the research topic. In my research study the unit of analysis is individual, i.e., the individuals of the

universities situated in the cities of Abbottabad, Islamabad and Rawalpindi.

3.2. Population and Sampling

3.2.1. Population

The population of this research study contains students of universities situated in the cities of Abbottabad, Islamabad and Rawalpindi. An estimate of the population of students of universities of Abbottabad, Islamabad and Rawalpindi was made, and it was made clear to them that the scales (questionnaires) to be filled by them will be used for academic research purposes only.

The clear understanding of the factors, i.e., impact of adverse childhood events, stress and emotional interest on drug abuse. The respondents to this research have been assured that their responses in all forms shall be kept confidential and their identity shall be kept anonymous, which shall offer them certainty of secrecy and allow them a relaxed and amicable environment in order to assist them to fulfill the requirements of this survey, i.e., to complete the survey and populate the form while doing so willingly.

3.2.2. Sampling Techniques

When a group of individuals is being researched, gathering data and information from each individual one by one is rarely a viable option or practicable. It is therefore recommended and much feasible to obtain data and information by sampling the total population / participants on applicable basis that is pertinent to the study / research on hand. As a result of sampling, only the participants in the study are selected as samples. Owing to the limitation of time and other resources, Snowball sampling and Convenience sampling techniques have been selected and used in this survey / research. Snowball sampling is a nonprobability sampling technique where the current study subjects on-board future subjects from among their known connections. Convenience sampling is one many non-probability sampling approaches through which the collection of data is based on the practicability of data collection.

3.2.3. Sampling

Due to time restriction and other aspects pertaining to making the research and sampling work feasible and viable, it often becomes impossible to obtain data from the entire population; this brings us to one of the most used and popular way of gathering data, that is, we sample individuals on the basis of probability which makes it arithmetically correct and a faster approach. For the purpose of achieving this goal, a group of individuals who truly represent the entire population was nominated. On the basis of snowball sampling and convenient sampling techniques, questionnaires were distributed, comprising of a suitable number, on the basis of the size of the population, among various students of universities situated in Rawalpindi, Islamabad and Abbottabad.

Nearly 350 questionnaires were distributed among the selected individuals for the purpose of collection of data; however, only 307, i.e., 87.7% of the total population, complete responses were received from the, and 249 questionnaires, i.e., 71.1% of the population, met the criteria to become useable for this research and could further be analyzed. Males took up 57.8 percent of the responders, whereas females were 41.8 percent. Furthermore, range of age of the individuals selected and who responded to our survey, is between 18 and 40 years.

3.3. Scales and Measures

The study's instrument for measuring ACEs, stress, emotional interest and drug abuse is made possible on the basis on the 5-point Likert scale, which construes 5 as being the most favorable (1 signifies 'strongly disagree' whereas 5 represents 'strongly agree').

3.3.1. Stress

For measuring stress, the scale used was: Perceived stress scale (PSS) by *Sheldon Cohen*, *American Sociological Association*, Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24, 386-396. Cohen, S. and Williamson, G. Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.) The Social Psychology of Health. Newbury Park, CA: Sage, 1988.

3.3.2. Adverse Childhood Experiences (ACEs)

Multiple scales are present for checking the adverse childhood experiences, these are, but not limited to, Bader K, Schäfer V, Schenkel M, Nissen L, Schwander J. (2007). Adverse childhood experiences associated with sleep in primary insomnia. J Sleep Res. 2007;16(3):285–296. doi: 10.1111/j.1365-2869.00608.

3.3.3. Emotional Interest

The questionnaire related emotional interest based on multiple variables is based on the study of Chi-Sum Wonga and Kenneth S. Law (Wong & Law, 2017).

3.3.4. Drug Abuse

For this variable, scale used was Development of an adolescent alcoholic and other drug abuse screening scale: personal experience screening questionnaire Ken C. Winters 1992.

3.4. Control Variables

For the purpose of analysis of control variables, a test, which is called, one-way **Analysis of Variance** (ANOVA) was selected and used, for the current research study, in order to determine the control variables, which, is considered to, may cause an impact to the outcome variable in supplement to the predictor's effect. One-way ANOVA was performed in order to control the mediator and the variables that are dependent i.e., stress and drug abuse based on demographic variables considered in this research study.

Table 1: One-way Analyses of Variance (ANOVA)

	DA		STRESS	
Sources of variation	**F value**	**P value**	**F value**	**P value**
Age	.495	.942	.894	.572
Gender	3.900	0.21	0.948	0.389

N=249 DA= drug abuse.

The outcome does not indicate any significant variation in drug abuse on the basis of age (.495, p >0.05), gender (3.900, p >0.05), therefore, there does not seem to be any requirement to control them. Likewise, there also does not seem to be any significant variation in stress on the basis of age (.894, p >0.05) and gender (0.389, p >0.05), therefore, they shall also not be controlled in regression.

3.5. Data Analysis Procedure

Data analyses seems to be the core of each study. Researchers tend to make references from their studies provided, they undertake appropriate data collection and processing methodologies. After performing the data collection stage, every research study then transfers on to the next phase which involves data analysis. This may be done in multiple of ways, each of which is specifically suited towards the particulars contained in the data collected and research made herein. The information that is subsequently gathered is then prepared and systematized to make a suitable presentation. The data that is obtained can simply not be examined any further until the completion of this phase.

For the purpose of data analytics, numerous and various different natures of programs are globally used. The data analysis undertaken and performed in this research made effective and efficient use of the SPSS (Statistical Package for the Social Sciences). There mainly exist two broad types of methods of / for analysis, i.e., quantitative analysis and statistical analysis. While performing quantitative analysis, it is usual to comprise and consider the respondents' demography, for instance, age, level of academic education, gender, etc. On the other hand, to establish the utility of the information that is gathered, statistical analysis is used to assists in this matter. This allows the researchers to reason with and make sense of trends and patterns which are larger in scale, from the data that is gathered from the sample population. Data

analysis was done with the help of SPSS software which also enabled and allowed for carrying out tests (as explained in chapter 4).

RESULTS

The first and the foremost aim of conducting this study and research is to determine relationship between adverse childhood effects and drug abuse, mediated by stress and moderated by emotional interest. Chapter 3 tries to explain research methodology used in this research study, whereas, this chapter aims to present forth the analysis and finding of the survey. This chapter is broken-down in to five sections, which covers quantitative analysis, that is, demographic analysis of the results, one-way ANOVA analysis for the control variables, correlation and regression analysis of the variables labored into this study.

4.1. Demographic Analysis

The set of data that has been gathered is then taken in to account for interpretation and understanding by making effective use of demographic analysis. It helps in the course of creating knowledge and information of the history of respondents and also their characteristics. Demographic analyses consist of the distribution or varying frequencies of demographic variables, for instance, gender, age, academic qualification, adding to the quantitative data (such as mean, standard deviation, etc.) relating to the variables, which consists of adverse childhood experiences, stress, drug abuse and emotional interest. The data that pertains to each specification of the related demography has been systematized in to and presented in tabular form and are provided for analyses in the subsequent sub-sections.

4.1.1. Age

Respondents to the questionnaires of this research are categorized on the basis of their age. 16.1 percent of the total respondents are below the age of 20 years, 75.9 percent of the total respondents constitutes of individuals the age of whom range from 21 to 25 years old. 4.8 percent of individuals are middle aged i.e., their age group is between 26 to 30 years old, 1.2 percent of the total population were 31 and over up to 35 years of age, whereas, only 2.0 percent of the total respondents were up to the age of 36 to 40 years.

Table 2: Distribution of respondents with respect to Age

Age	Frequency	Percentage	Valid Percentage	Cumulative percentage
Up to 20	40	16.1	16.1	16.1
21 to 25	189	75.9	75.9	92.0
26 to 30	12	4.8	4.8	96.8
31 to 35	3	1.2	1.2	98.0
36 to 40	5	2.0	2.0	100.0
Total	249	100.0	100.0	

4.1.2. Gender

This study was made possible due to both males and females who successfully participated in the research study. Percentage of the male respondents is 57.8 percent whereas, percentage of female respondents is 41.8 percent.

Table 3: Distribution of respondents with respect to Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	144	57.8	57.8	58.2
Female	104	41.8	41.8	100.0
Total	249	100.0	100.0	

4.2. Reliability Analysis

This study also includes reliability analysis which was undertaken to obtain the reliability of scales for each variable used in the study. The table shown below reports The Cronbach Alpha values:

Table 4: Reliability Analysis (Cronbach Alpha)

Variable	No of Items	Cronbach's Alpha
Adverse Childhood Experiences	9	0.890
Stress	10	0.860
Emotional Interest	16	0.784
Drug abuse	6	0.715

4.3. Correlation Analysis

Correlation analysis was deemed important to be performed so it could be made possible to determine the association among the variables could be determined, whether and if they fluctuate and move simultaneously and in harmony or not. This predominant aim of this study is to establish, whether and, if there does exist a link or a connection between adverse childhood experiences and drug abuse mediating that relationship by role of stress and moderated by emotional interest.

The link between the variable may be related or directed towards its value of significance. Value of the correlation tells the relationship between the variables and it shows the significance of the relationship either it is higher than zero or not. If the result of correlation is zero then it shows that there is no specific correlation exist among those two variables. However, the values as well as the signs also show the values and how that are correlating directly or indirectly. Two signs positive and negative are used to represent the relationship. For example: if the sign of co-relation coefficient value is positive than it shows that the relationship between two variables is direct. The positive sign with the value also represents that in this direct co-relation the increase in one variable causes the increase in the second variable. Similarly, if there is a negative sign with the value of the co-relation coefficient that it tells that the nature of relationship is indirect. And this indirect link between the variables explains that if there is an increase in one variable it eventually causes a decrease in the second variable. So, these positive and negative values are of much importance to explain the relationship.

The table below helps to show the correlation between the variables of this study. Furthermore, correlation values show the nature and the magnitude of the correlation between the variables.

Table 5: Descriptive Stats and Correlations

	1. ACE	2. stress	3. EI	4.DA
1. ACE	(0.890)			
2. Stress	0.027*	(0.860)		
3. EI	-0.33*	-.085*	(0.78)	
4. DA	.090	0.30	-0.062	(0.71)

N=249, ACE= Adverse childhood experiences, EI= Emotional Interest, DA= Drug Abuse ns= not significant p value (p>0.05), Cronbach's Alpha is in parenthesis

Correlation coefficients (see Table) were calculated by making the use of SPSS (Statistical Package for the Social Sciences) software in order to obtain an understanding of the relationships that have been proposed in the study model. This table also professes that adverse childhood experiences hugely correlate with drug abuse and the positive sign is indicative of the positivity of significance (0.090, $p>0.05$). This result also affords a preliminary support for the H1. Furthermore, there seems to be a significant correlation between the ACE with stress (0.027, $p<0.05$), giving initial support for H3.

However, it does not significantly correlate with emotional interest (-0.33, p>0.05) and the negative sign signifies the indirect relation between ACE and emotional interest. The table further specifies significant correlation of stress with drug abuse (0.30, p<0.05). This provides initial support for H2. However, the outcome of regression analysis will help determine and assist in making decision to whether support or not the hypothesis.

4.4. Descriptive Analysis

The statistical summary of the various variables as well as their standard values are explained in the descriptive analysis.

The basic important information about the study is explained in the descriptive analysis, such as the sample size, the largest value, the smallest one, the standard deviation with respect to the respective means. The table number 6 in the following gives the detailed descriptive analysis of the data available. In the very first column of the table the names of the variables are mentioned. However, the sample size is mentioned in the second column, the third and fourth column explain minimum and the maximum values, in the fifth column mean values are mentioned while in the last sixth column information about the standard deviation is given. On a five-point Likert Scale, each variable adverse childhood experience, stress, emotional interest and drug abuse was provided with a point score ranging from one to five, in which one means "Strongly Disagree" whereas, five means "Strongly Agree."

Values obtained by calculating 'mean' indicate the crux of responses. The mean value obtained for the adverse childhood experience is 3.84 indicative of the fact that the respondents agreed, whereas, the mean value obtained for stress is 3.94, being indicative of the fact that the respondents agreed to it as well. Emotional interest has obtained a mean value of 3.88, being indicative of that larger population of the respondents had a positive outtake.

The mean value of 4.03 on drug abuse in the table shows that the respondents generally agree to that too.

Table 6: Descriptive Analysis

	Sample Size	Min.	Max.	Mean.	Std. Dev.
ACE	249	2.00	5.00	3.84	.68
Stress	249	1.00	5.00	3.94	.66
Emotional Interest	249	1.00	4.50	3.88	.74
Drug Abuse	249	1.00	5.00	4.03	.73
Valid N (listwise)	249				

4.5. Regression Analysis

In order to solidify the results of correlation analysis performed, i.e., the existence of a link between variables, this study makes use of regression analysis. It helps to explain the association between the variables and the amount to which if a change occurs, in result, causes a variation in the other. Simple or linear regression helps in examining the association among both types of variables, i.e., independent and dependent. Numerous variables are used to perform regression analysis.

In this study under consideration, Hayes methods were adopted to perform mediation and moderation analysis. Depending on what relationship is being considered, predefined models are available for the purpose of making and assisting in analyzing different data. For the purpose of making analysis on mediation, Model 4 is used, whereas, for the purpose of making analysis on moderation, Model 1 is used. (Preacher and Hayes, 2004).

4.5.1. Linear Regression

Use of linear regression analysis has made it possible to demonstrate the level up to which a variable (the dependent variable) is dependent on another variable (the independent variable) while it is being analyzed.

Table 7: Linear Regression Analysis with drug abuse as Dependent Variable

	Drug Abuse		
Predictor	**ß**	**R-Square**	**Sig (p-value)**
Adverse Childhood Experiences	0.46	0.17	0.00
Stress	0.50	0.26	0.00

N=249, B= Beta Coefficient, Sig= Significance (p-value)

Table 7 displays the outcome of the first hypothesis. According to first hypothesis, H1, adverse childhood experience positively impacts drug abuse. Regression results show that adverse childhood experience impacts drug abuse, and there is a significant positive relation between them. The value of the Beta coefficient is 0.46, and the R-Square value is 0.17, and the p-value is 0.00.

As in the analysis the p-value of the for the relationship between the variable is 0.00, which is less than 0.05, it tells that the relationship is very significant. The beta value has a positive sign which shows that there is significant positive relationship between the variables. The value of beta has a direct positive influence on this relationship. This proves that a positive shift of 0.17 in drug abuse is being brought about by the adverse childhood experience. Therefore, the result of the linear regression analysis result in the support of hypothesis (H1)

Table also shows the second hypothesis which is, stress has an important significant positive effect on drug abuse. The result obtained from the regression analysis tells that the relationship between stress and that of drug abuse is significantly positive.

The R Square value is 0.26, and the Beta value is 0.50, while the value of p for statistical significance is 0.00. The p-value for the relationship between the variables is 0.00, which is lower than 0.05, so it shows that the relationship is very significant.

The positive value of beta indicates that it has positive effect on the variables and these variables have positive association among them. which means that adverse childhood effect is positively increasing the number of drug addicts.

The result of linear regression provides evidence in favor of our Second (H2) hypothesis.

Table 8: Linear regression Analysis of Stress as a dependent variable

	Stress		
Predictor	**ß**	**R-Square**	**Sig (p-value)**
Adverse childhood experience	0.52	0.19	0.00

N=223, Sig= Significance (p-value, B= Beta Coefficient,

The outcomes obtained in this investigation into the third hypothesis are indicated in Table 8. According to third hypothesis, the impact of adverse childhood experience associated with stress has an extensive effect. The outcomes obtained by performing the regression analyses demonstrate that the association among these two variables is significant, further, one of the aspects, the adverse childhood experience, does have an effect on stress. The value of R-square is 0.19, the value of the Beta coefficient is 0.52, and the p-value is 0.00. there is a significant association found among the variables as the value of R-Square is significant.

However, the value of p is less than 0.05, that is 0.00 which indicates that the relationship is very significant. However, the negative sign shows the indirect relation between the variables and that it is positively linked to them. This shows the stress us linked positively to the adverse childhood experience. As a result, thereof, by making the use of linear regression support for our third hypothesis (H3) has been obtained.

4.5.2. Mediated Regression

H3: Adverse Childhood Experience, which is one of our hypotheses, significantly impacts stress in a positive manner, will be examined by Mediation

Analysis. The second hypothesis considered, and made part of this research, constitutes stress as having a robust strong positive effect on drug abuse. The third one is that the association between adverse childhood experience and drug abuse is mediated by the stress. So, in order to confirm our hypotheses H2, H3 and H4, we have used Process Macro by Hayes. The pathways linking the independent variable to the mediator and in turn the mediator to the dependent variable must be considerable to confirm the mediation process.

Table 9: Mediator Regression Analysis

	ß	p-value	LLCI	ULCI	Boot LLCI	Boot ULCI
ACE to Stress	-0.52	0.00	0.38	0.66		
Stress to DA	0.41	0.00	0.30	0.54		
ACE to Stress to DA	0.12		0.44	0.19	0.15	0.27

N=249, B= Beta Coefficient, Sig= Significance (p-value), SE= Standard Error, ACE= Adverse childhood experience, DA= drug abuse

In hypothesis H4, it was assumed that stress mediates the relationship between adverse childhood experience and drug abuse. The prevailing times has offered limelight and granted some significance and importance on the component Adverse childhood experience and drug abuse, as there is an increase in stress among individuals there exists a positive relationship between stress and drug abuse. In this mediation path, it shows the result of the hypothesis which are evident in the mediation table.

Mediator impact indirectly to the study variables, and towards the adverse childhood experience it has direct strong correlation. As between the lower limit 0.15 and the upper limit 0.27 there is no zero. This helps to confirm and support the hypothesis 4 (H4). By the use of the regression analysis the credibility and importance to the H4 was made possible.

4.5.3. Moderated Regression

According to hypothesis 5 (H5) it was suggested that effective emotional interest shall be able to moderate the link between adverse childhood experience and stress. This, however, gives rise to the argument that successful emotional interest will lower the relationship among them. Table 10 of this research gives a description of the results on this theory. The upper-level and lower-level confidence intervals of 0.02 and 0.12 in the findings have the same indication, and there is no zero value in between them. Furthermore, the interaction term displays a positive and significant regression coefficient (β= 0.05, p 0.05), which indicates that emotional interest considerably moderates the correlation between adverse childhood experience and the stress. As a result, thereof, I have been able to provide conclusion that the moderation analysis gives credibility to Hypothesis 5.

Table 10: Moderation Regression Analysis

	ß	P-value	Boot LLCI	Boot ULCI
Int_term	0.05	0.045	0.02	0.12

N=249, B= Beta Coefficient, Sig= Significance (p-value), SE= Standard Error, Ace= Adverse childhood experience, Int_term= Interaction term.

4.6. Summary of Supported and Not-Supported hypothesis:

The main and foremost aim of this study is to study and analyze the relationship between adverse childhood experience, drug abuse, emotional interest and stress. This research study comprises of five hypotheses, and the subsequent results thereof are based on the analyses of correlation and regression as shown in Table 11 below.

Table 11: Summary of accepted and rejected hypotheses

H. No	Hypothesis Statement	Summary
H1	Adverse childhood experience has a significant positive impact on drug abuse.	Supported
H2	stress has a significant positive impact on drug abuse	Supported
H3	Adverse childhood experience has a significant positive impact on stress	Supported
H4	Stress mediates the relationship between Adverse childhood experience and drug abuse	Supported
H5	Effect of emotional interest dampens the relationship between Adverse Childhood Experience and stress	Supported

DISCUSSION AND CONCLUSION

5.1. Discussion

As chapter 4 presents in-depth discoveries along with examination of the data that has been thoroughly gathered as a result of this research, the current chapter focuses on discussing the connection between our different hypotheses and puts forth descriptions for each of the hypothesis test shown in Table 11 that is based on correlation and regression analysis performed. Various research papers have undertaken the responsibility to study the impact Adverse childhood experience and stress has on drug abuse. All of the hypotheses in this study are supported on the basis of regression modeling, as presented in the Table 11. Through this chapter, it is undertaken to detail out the connection that exists between the hypotheses as well as explanation on them for being either supported or otherwise, the importance and value of the hypotheses both considering theory and practical aspects, the strengths and weaknesses of the research study and future prospects and implications. Large part of the aim of this research has been to study and analyze that how the adverse childhood experiences impact drug abuse. In our examination, we made an assumption that the relationship between adverse childhood experience and drug abuse was mediated by stress and moderated by emotional interest.

Since this research study depends on the data and information obtained from various universities located in major cities situate in Pakistan, we planned and proceeded to examine the hypothesis that was proposed, that is, adverse childhood experience having a direct relation with drug abuse, stress as having a significant positive impact on drug abuse, adverse childhood experience has a major negative effect on stress, while stress mediates the relationship between adverse childhood experience and drug abuse, and emotional interest weakens the relationship between adverse childhood experience and stress. These hypotheses were then analyzed by the data gathered from across the 249 individuals who provided this study with their responses. Hence, the entirety of the hypotheses is indeed backed-up in establishing a relationship between Adverse childhood experience and drug abuse using stress as a mediator. The outcomes indicate that any category of adverse childhood experience can lead to drug abuse. Drug abuse can be minimized by reducing stress and adverse childhood events from the environment. This study includes emotional interest as a moderator. Outcomes formulated as a result of the analysis show that in the universities located in Pakistan, stress does indeed influence the relationship there exists between adverse childhood experience and drug abuse. The outcome further shows that emotional interest significantly and positively affects the relationship between adverse childhood experiences and stress. Hence, it weakens their relationship as a moderator.

The result obtained after analyzing the data shows that our hypotheses, in their entirety, are indeed duly supported. The information has been gathered from numerous universities located in the capital city of Islamabad as well as in Rawalpindi and Abbottabad and the result of analyses of data confirms that all of our hypotheses are supported. Pakistani project-based organizations have also been made the subject of our information gathering activity, as a result thereof, this research work was situated, conducted and based of in Pakistan. What follows is a description of the argument in sufficient

detail: Primary objective of this study was to establish an integrated model of political perception with its dual consequences. We articulated questionnaires for the research study and ran tests on corresponding hypotheses of theirs in order to successfully accomplish our target. Detailed analyses of potential and possible causes for these results are performed herewith, in this chapter.

5.1.1. Adverse childhood effect and drug abuse

A significant relationship was found between persons who experiences some sort of early life stress or trauma with substance use and other risky behaviors such as poor physical and mental health in a landmark study performed in 1900s (Butler et al., 2018). There is a significant positive correlation between adverse childhood experience and drug abuse, as it was hypothesized in the literature review, chapter 2. Now the data produced in this study shows the results that are supporting this hypothesis very strongly.

There is a strong and positive relationship between adverse childhood effects and abuse of multiple types such as verbal, sexual or physical either of the children or their parent or family member. Also, the poor household functions may also be the cause of adverse childhood experiences which in turn increases the stress rates in adult like depression anxiety or homicidal or suicidal thoughts. These thoughts therefore can be the cause of increase interest of those children who have faced traumatic childhood towards drug or alcohol abuse. By using any type of drug abuse, the risk factors of multiple diseases of liver or lung disease may increase which may lead to deaths.

There is a significant relation between adverse childhood experience, including childhood abuse and household dysfunctions, with several other health risks including cancers and death. Studies like (J. McCauley, Schroeder AF, et al 1997) show verbal abuse or sexual abuse may also turn an increase in interest for drug misuse among children. *(Briere J, Runtz M., 1998, &1990),* in their study about women show that childhood abuse of one type or several have long term effects on a person's wellbeing and measured the result of one or more types of abuse that a woman goes through which may harm them both mentally and physically.

Any kind of the adverse childhood experience categories when experienced by children or observed by them may cause the increase in childhood traumas which may lead to drug abuse, suicidal thoughts or death. He compared individuals who have been exposed to one or more than one types of childhood abuse with the persons who have not experienced any and stated that those who experienced Alcoholism, depression, anxiety, drug abuse and suicide attempt or more.

5.1.2. Stress and Drug Abuse

Stress is one of the very common factors, among other biological, psychological, and environmental factors, that can cause a person to become more prone and susceptible to drug use. A person when stressed is able to do anything to get rid of this condition which result in the persons increase in interest towards some negative things including drug or multiple substance abuse. Stress can be caused by events, conditions or some unpleasant situations existing or occurring in the environment and is established as a result of severe physical responses which are often potentiated by long-term developmental changes. Multiple theories on addiction states that stress (acute and chronic) has major role in use of addictive substances. (Leventhal and Cleary, 1980; Wills and Shiffman, 1985; Tomkins, 1966; Russell and Mehrabian, 1975; Shiffman, 1982; Marlatt and Gordon, 1985; Koob and Le Moal, 1997).

Previous studies show strong link between the use of illicit substances and stress. Stress among adults as well as teenagers is becoming a major problem. To overcome this one can be involved in a number of negative activities that can cause harm to the person as well as to the society. Stress can be caused due to various factors among which the traumatic experiences of childhood are of more importance. As in the above analysis of the data taken through snowball sampling and convenient sampling techniques, it shows that the ratio of drug abusers is more among the individuals who are stressed and had any adverse or bad childhood memory with them. Person undergoing stress or any kind of depression uses the illicit substances to overcome this condition without knowing that it is silently

increasing the stress levels and worsening the person's condition more and more.

5.2. CONCLUSION

Analysis performed shows that are a higher prevalence of stress, emotional interest, and ACEs in the participants. The prevalence of smoking and drug abuse was also comparatively high. ANOVA and correlation analysis performed shows significant relations between the variables. All these analyses are indicative of the fact that there is a significant positive relationship between all the variables. From the above performed analysis it can be concluded that the stress, emotional interest and ACEs lead towards with the drug abuse. Stress can be considered as a key factor along with emotional interest and ACEs towards bad psychological and behavioral habit. Stress that can be deforming and toxic that results from ACEs can alter and often hinder healthy brain developments and activity and disturb the manner in which the body responds to stress. ACEs are also linked to life-long health problems, mental inefficiency and substance misuse later in life such as adulthood

Adverse childhood experiences can also be used to improve the well-being of children through practice and policies, which typically include health promotions, dissemination of health and safety education and information to lessen the trauma related effects, stress conditions certain issues relating to behavior and emotions that are linked to these adverse experiences of childhood. (Bethell et al., 2017). Previous studies proved these issues and certain disapprove the more focus on adverse childhood experiences to be the causes of traumas because it highlights the issues and it does not speak about the factors impacting these adverse effects and flexibility of the term (ACE), therefore parents were considered to be the causes of multiple adverse experiences that a child faces during childhood while the environmental factors such as lack of education, knowledge, less or no policies, lack or resources, overcrowded public places(orphanages, schools, hostels), etc. are never been discussed properly.

Counter-ACEs

Advantageous childhood experiences, (the counter Aces) are also examined in various studies to find out any positive childhood experiences faced by children. So, with adverse childhood experiences, positive experiences are also studied. There are a very few studies that show the positive childhood experiences or counter adverse childhood experiences (counter ACEs). According to research in the developmental psychology that counters ACEs or positive childhood experiences can help to expand upcoming social involvements and positive healthy relationships. (Narayan, Harris *et al*, 2018), such as, research conducting on studying that how person's experiences in his / her childhood affects their roles later on as an adult, it was analyzed that some specific positive and / or pleasant childhood experiences, for instance, as personal and with other persons and certain early engagements of learnings through school have greatly proposed and predicted, improved and better efficiency and effectiveness, performance along with responsibilities later in life when they became adults (Kosterman et al., 2011). Feeling of love, safety, respect, support and conducive environment both within homes and relatives along with peers and people outside family are associated to further traits and characteristics of adaptability in grown-ups like confidence. (Johnson, Bromley, & McGeoch, 2005). One more research study formed a positive childhood experience indicator by making use of the eight factors of extensive maternal tutoring, high professed socio-economic standing, two-parent family system, domestic steadiness, absence of domestic violence cases, no anxiety stressed patients nearby, absence of smokers living in the home, high maternal love and warmth, high emotional support through conducive environment to express oneself, and high necessary support (Slopen, Chen, Guida, Albert, & Williams, 2017). Participants who were able to score more indicator on their experiences as child being positive, had proper health scores for their cardiovascular activity. Positive and constructive experiences along with cooperative and supportive connections can assist in confidence building in people during their childhood that eventually helps them to endure adverse experiences and ordeals latter in their lives (Poole, Sege et al., 2017)

The above results and data shows that all the five hypotheses are proved to be related to each other, it is proved that the adverse childhood experience tends to cause an increase in the stress levels and to find escape form these stressed conditions the interest of people towards the drug abuse is increasing day by day.

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